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ABSTRACT

This article offers opinions and insights from four graduate deans at California State University institutions concerning the master's degree and the direction of master's level education. It is noted that U.S. graduate education is increasingly concentrated at the master's degree level, and that this degree level serves a particularly important transitional function (to doctoral level work) for students from underrepresented groups enrolled in comprehensive institutions of higher education. It is argued that the nation's comprehensive universities play a special role, therefore, in providing the nation's master's degree programs, programs essential in training people who can help the nation compete within a global economy. Such national needs make federal funding and institutional support (to provide easier access to graduate study) of master's degree programs a critical component in helping students, particularly minority students, gain the mentored research experience needed for entrance into prestigious doctoral programs. Examples are provided that illustrate the importance of funding merit-based fellowships for such students in master's programs. The need for increased student loan programs, particularly for non-traditional, minority students is stressed. The use of loan-forgiveness programs as an incentive for these types of students to make the necessary commitment to obtain graduate degrees is recommended. (GLR)

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THE MASTER'S DEGREE, THE COMPREHENSIVE UNIVERSITY, AND THE NATIONAL INTEREST

by

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At the CGS annual meeting last December, a report was made to the membership on the activities associated with the National Study of Master's Education sponsored by CGS with a grant from the Pew Trust. Four graduate deans at California State University institutions offer their insights into the important topic of the master's degree and the direction of master's education.

The Importance of the Master's Degree in American Higher Education

A quiet revolution has occurred in American graduate education over the past three decades. The master's degree has achieved a position of prominence. Offered by growing numbers of universities across the country and geographically accessible to large numbers of Americans, the master's degree has become the nation's most ubiquitous and versatile graduate degree. Building on the bachelor's degree, it prepares researchers as well as professionals and practitioners; it provides a steppingstone to the doctoral degree as well as a capstone for a professional career. It is built on the knowledge gained in undergraduate study, but it may also provide advanced work in a field new to a student. It is the entry level degree for many professions while it is the "terminal" degree for others. In some comprehensive universities, it provides an opportunity for students to redirect themselves into scholarly careers and eventual doctoral work. The value of the master's degree is well known to American businesses, which support employees pursuing advanced work. It is well known to America's schools, which encourage teachers and professionals to pursue it. America's community colleges rely on the master's degree for faculty preparation, and the country's social and health services are utterly dependent on master's trained professionals. Of students taking the Graduate Record Exam, 60 percent indicate that a master's degree is their objective.

It should be no surprise, then, that U.S. graduate education is increasingly concentrated at the master's degree level. As shown in Chart I, there were seven times as many master's as doctoral degrees awarded in 1960. By 1988, there were nine times as many master's as doctoral degrees awarded.

At a time of impending faculty shortages and minority underrepresentation in doctoral programs, the particular importance of master's degree programs as transitions to doctoral study—especially for women and underrepresented ethnic and cultural groups—is of note. Recent data from the National Research Council show that 75 percent of male doctorate recipients and 79.7 percent of female doctorate recipients had earned a master's degree prior to the doctorate. Often, completion of a master's degree results in redefining goals and relocating to a different institution for the doctorate. The master's degree serves a particularly important transitional function in this respect for students from underrepresented groups who had not previously aspired to pursue doctoral level work and who are proportionately more heavily enrolled in comprehensive master's degree institutions than in doctoral-granting institutions.

In California as well as some other states, the concentration of students from underrepresented groups in non-doctoral institutions (i.e., the California State University) results in heavy utilization of the CSU master's degree as a transition to a doctoral degree elsewhere. As an example, Tables I and II provide data on

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the doctoral institutions selected by recipients of California State University's doctoral incentive loan. The CSU Forgivable Loan/ Doctoral Incentive Program identifies promising students from underrepresented groups, usually enrolled in or having completed CSU master's degrees, and lends them money to complete doctoral degrees elsewhere. The loans are forgiven if recipients return to the California State University to teach.

The recently implemented California Pre-Doctoral advising program sets out even more systematically to identify master's degree and upper division and master's degree students who should be encouraged to study for the doctorate. In this program faculty mentors are identified and funding is provided for travel, summer research, other exchanges to doctoral institutions, and memberships in professional associations.

Table I

California State University Forgivable Loan/ Doctoral Incentive Program:

Loan Recipients, by Ethnic Background and Sex, 1990-91

	Female	Male	Total
White	45	2	47
Black	19	18	37
Hispanic	30	15	45
Asian	5	5	10
American Indian	3	4	7
TOTAL	102	44	146

Table II

California State University Forgivable Loan/ Doctoral Incentive Program:

Doctoral Institutions of Loan Recipients

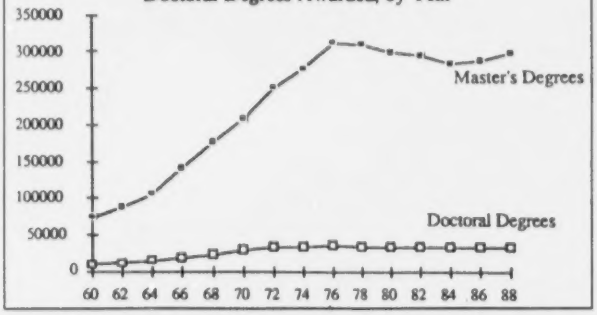
Boston University	1				
Bowling Green	1	Rutgers	1	U of Pennsylvania	1
Brown	2	San Diego State U	3	U of Utah	1
Case Western	1	San Francisco State	1	U of Washington	3
Claremont	8	Stanford	1	U of Wisconsin	1
Cornell	1	Syracuse	1	UC, Berkeley	10
Florida State	1	U of Arizona	3	UC, Davis	9
Glasgow	1	U of Arkansas	1	UC, Irvine	1
Golden Gate	1	U of Edinburgh	1	UC, Los Angeles	10
Harvard	1	U of Illinois	2	UC, Riverside	7
Missouri State	1	U of Iowa	2	UC, San Diego	1
Northern Arizona	1	U of Michigan	1	UC, Santa Barbara	16
Northwestern	1	U of Missouri	1	UC, Santa Cruz	2
New York U	1	U of Oklahoma	1	US Intl. U	1
Pacific Grad Psych	1	U of Oregon	2	U of Southern Calif	22
Pepperdine	1	U of Pacific	1	U of San Francisco	16

There is ample evidence that students do make the transition. Table III shows the extent to which master's degree recipients from one large state system (the California State University) move into doctoral programs in another large state system (the University of California) and complete the doctorate.

America's comprehensive universities play a special role in providing the nation's master's degree programs. Over time, they have become major providers of master's degree graduates, and this, in contrast to doctoral level preparation, is their emphasis. In

Chart I

Comparison of Numbers of U.S. Master's and Doctoral Degrees Awarded, by Year



1987, when the Carnegie Foundation undertook its most recent reclassification, there were 427 public "comprehensive universities." Most of these universities offer little or no doctoral work. It is estimated that they now produce approximately 25 percent of the nation's master's degree holders, many of whom continue elsewhere for doctoral degrees. One large 20-campus comprehensive university system, the California State University, alone is responsible for more than 9,000 master's degrees annually—nearly four percent of the nation's master's degrees.

The Importance of the Comprehensive University in Providing the Master's Degree

Though the master's program has changed in its prominence, role, and distribution among institutional categories, federal policy continues to be derived from a time when it was assumed that master's degree programs were housed in doctoral-granting departments and served either as interim degrees for full-time Ph.D.-bound students or final degrees for those who were not advanced to candidacy. This is simply not the pattern to be found in the nation's comprehensive universities. Their master's degree students are frequently regional residents; predominantly part-time (83 percent of CSU master's students are part time); predominantly female (54 percent of CSU students) and older. In the California State University, the mean age of master's degree students is 33.9 years old. This is a profile that differs markedly from the profile of the nation's Ph.D. students. It is time that national policies recognize master's degree students as a separate class of students and the master's degree as a degree having integrity in its own right; as a degree that has proven invaluable to the nation; and as a degree that will take on growing importance as the nation attempts to increase its competitiveness and improve its schools, and as a degree which moves a significant number of students toward the doctorate.

The Role of the Master's Degree in Meeting National Needs

A globally integrated economy emphasizing the distribution and analysis of information will require widespread learning and thinking skills of an order not previously imagined. Individuals who are equipped to manage information and to make meaning

of it will be social and professional leaders, and they will gain further economic advantage because they will be the leading wage earners. Those who cannot manage information and imbue it with meaning will generally be less competitive for wages and influence. In a labor market increasingly bifurcated between high-paying, prestigious employment in information and financial industries and low-paying employment in personal services, demand will increase for programs that emphasize skills in inquiry and analysis. Though master's programs vary in their purposes and characteristics, most share a commitment to providing students with some experience in original scholarship and acquainting them with the research protocols appropriate to the field. Master's degree graduates, in other words, are equipped to understand, analyze, and synthesize information. To remain competitive within a global economy, the nation will need many more people with these capacities than it now has—and growing numbers of people will want to develop these capacities.

These capacities are now and will continue to be distributed across a number of fields which serve national interests in very different ways. Two fields combined account for nearly half of the nation's master's degree awards. They are business/management and education. The remaining degrees are awarded in more than 300 fields, and the numbers indicate something of the diverse purposes of the degree and its importance to the nation. The 32,500 master's degrees in engineering and computer science awarded in 1988 reveal in part the importance of the master's degree to the nation's technological competitiveness, and the 18,426 students graduating in the health professions reveal something of the degree's importance to the nation's welfare.

Where it does not serve as a terminal degree, the master's degree will remain a critical function in replenishing the nation's supply of Ph.D. faculty. Data about impending shortages of faculty are well known and will not be repeated here, except to note that most estimates of the numbers of new and replacement faculty needed in arts and sciences alone between now and 2012 range above 100,000. If these numbers are to be produced, and if the nation's faculty is to be diversified, the graduate enterprise will need to operate at maximum efficiency and effectiveness, utilizing all available institutional resources.

The Need for Funding to Support Master's Degree Students

Given the above-mentioned national needs, the master's degree can be an important step on the path to the doctorate. This can be especially true for students from underrepresented groups. The master's degree can provide a mentored research experience which serves as strong preparation for the doctoral program. In the California State University, our campuses have found the Patricia Roberts Harris awards particularly important for attracting and retaining talented minority master's students, shortening the time to degree, and gaining acceptance into prestigious doctoral programs. Table III shows a significant number of students completing CSU master's degrees who then earned doctorates from UC campuses in 1988.

Table III
DOCTORAL DEGREES AWARDED BY THE UNIVERSITY OF CALIFORNIA, 1988
Number and Percent of California State University Master's Degree Holders Earning UC Doctoral Degrees, by Ethnicity
U.S. Citizens and Permanent Residents

	1988				
	Asian	African American	Chicano/ Latino	White	TOTAL
Arts & Humanities					
CSU #	1	0	4	20	28
CSU %	8.3%	0.0%	30.8%	9.3%	10.9%
Total	**12**	**7**	**13**	**214**	**256**
Engineering					
CSU #	1	0	2	5	8
CSU %	2.6%	0.0%	40.8%	3.2%	3.8%
Total	**39**	**0**	**5**	**157**	**212**
Life Sciences					
CSU #	2	0	1	28	33
CSU %	10.0%	0.0%	9.1%	15.6%	4.8%
Total	**20**	**4**	**11**	**180**	**223**
Physical Sciences					
CSU #	4	0	1	8	15
CSU %	22.2%	0.0%	11.1%	6.3%	9.1%
Total	**18**	**2**	**9**	**126**	**164**
Professional					
CSU #	0	3	1	19	24
CSU %	0.0%	37.5%	14.3%	22.1%	21.4%
Total	**9**	**8**	**7**	**86**	**112**
Social Sciences					
CSU #	0	2	0	24	26
CSU %	0.0%	28.6%	0.0%	13.1%	12.7%
Total	**9**	**7**	**14**	**183**	**221**
All Disciplines					
CSU #	8	5	9	104	136
CSU %	7.5%	17.9%	15.3%	11.0%	11.4%
Total	**107**	**28**	**59**	**946**	**1,188**

* *Source: National Research Council*

Federal support for graduate education has fallen substantially since 1969 (60,000 federal fellowships and traineeships were funded in 1969 compared to approximately 12,000 in 1989). As a result, we have seen the percentage of doctorates earned by U.S. citizens decline also. Increased grant support is necessary to reverse this. In order to access fully underrepresented populations, it will be necessary to provide grant support at the master's and the doctoral levels.

Table IV shows the documented financial need of CSU master's and joint doctorate students in 1989-90.

Table V shows the financial need for all post-baccalaureate students in the CSU during the same year.

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Table IV

	Number	Total $	Average $	Median $
Graduate Students (Master's and Joint Doc Students)				
Gross Fin Need	9781	58,035,958	5934	6137
Total Fin Aid	9781	43,083,983	4478	4537
Unmet Need	5624	14,984,931	2664	1921

Table V

	Number	Total $	Average $	Median $
All Post-Baccalaureate Students				
Gross Fin Need	16,442	94,384,298	5740	5931
Total Fin Aid	16,442	68,716,453	4179	4186
Unmet Need	10,125	26,882,190	2655	2038

It can be seen that the nation's largest system of higher education, the CSU, has approximately $15 million of unmet financial need for its 10,000 master's and joint doctoral students. It should be emphasized that this is in addition to programs funded annually by the CSU (the Graduate Equity Fellowship program ($523,000/year) and the Forgivable Doctoral Loan Program ($3,000,000/year) for master's students from underrepresented groups.

Merit-based fellowship programs for these students at the master's level are critical for fully accessing and preparing our citizens for the doctorate. The following examples illustrate the importance of merit-based fellowships for such students in master's programs.

Former Fellows Now in Doctoral Pipeline: Examples from One CSU Campus

Fellow #1:
With a Patricia Roberts Harris Fellowship, one CSU campus was able to attract a black male from industry into its master's program in computer science. As the first black student in this program, he earned one of the few 4.0 grade point averages in the program's history and completed a rigorous, mentored research assistantship. Upon timely completion of the master's degree, he was accepted by six prestigious doctoral programs, and is currently on a full fellowship and a CSU Forgivable Doctoral Loan at Brown University. He is one of only two or three black computer science doctoral students in the nation.

Other examples of master's degree Fellows (all from underrepresented groups) now in doctoral pipelines from the same campus include:

Fellow #2: Graduate Equity Fellow, (1988-89)
Received Forgivable Loan—began Fall 1990
University of Waterloo - pursuing Ph.D. in Geography with specialization in Economic Development/ Regional Planning.

Fellow #3: Graduate Equity Fellow, (1988-89)
Pursuing Doctor of Veterinary Medicine - Kansas State University

Fellow #4: Graduate Equity Fellow, (1988-89)
Applying for 1991-92 CSU Forgivable Doctoral Loan
Fall 1991 - Began Ph.D. program in Geography at University of Kansas

Fellow #5: Graduate Equity Fellow, (1990-91)
Applying for 1991-92 CSU Forgivable Doctoral Loan
Will begin Ph.D. in Geography
Accepted at: University of Pennsylvania; University of Colorado, Boulder; University of British Columbia; University of Texas, Austin

Fellow #6: Graduate Equity Fellow, (1989-90. 1990-91)
California State University Pre-Doctoral Scholar, 1990-91 CSU Forgivable Doctoral Loan
1991 - Began Ph.D. in Anthropology with specialization in archaeology at UC Berkeley

Fellow #7: Graduate Equity Fellow, (1990-91)
Applying for 1991-92 CSU Forgivable Doctoral Loan
Field: Computer Science

Fellow #8: Patricia Roberts Harris Fellow, (1989-90, 1990-91)
Applying for 1991-92 CSU Forgivable Doctoral Loan
Will begin Ph.D. in Computer Science at one of the following: Michigan State; UC Davis; University of Iowa; University of Southwestern Louisiana; Arizona State University

Fellow #9: Graduate Equity Fellow, (Spring 1990)
Patricia Roberts Harris Fellow, (1990-91)
Applying for CSU Forgivable Doctoral Loan
Fall 1991 - Will begin Ph.D. in Geography at Oregon SU. Hired as assistant professor, given fellowship and provided with two teaching assistants.

Recommendations

Comprehensive university institutions (including those of the California State University system) that offer only master's degree graduate programs present unique problems in maximizing their capacity to prepare and encourage students to engage in further graduate education. This is especially evident in the area of minority students, for whom these institutions play a critical role in offering a first step to graduate study. Here, they may benefit from the special strength and commitment of faculty members to teaching and nurturing students. Particularly in the sciences and engineering fields, where nationally the number of minorities and women is disproportionately low, these institutions may provide additional strategies for these students' professional development. On the one hand, this may result in comprehensive universities serving as an important feeder to the doctoral pipeline. On the other hand, they also play a major role in preparing terminal master's graduates to meet the projected drastically-growing needs for community college faculty, as well as for professional master's degree candidates to fill professional and technological positions in industry and government.

However, these critical non-doctoral, non-research-intensive comprehensive universities often have substantially less financial support available to assist the successful development of their students. They are able to offer fewer assistantships, fellowships, scholarships, and traineeships from their own limited budgets, and, without well-established research programs, are less likely to benefit from the federal research grants accorded to research-intensive institutions.

An equally important aspect of federal support for graduate students is the provision of institutional support. This support is critical to recruitment and retention efforts at comprehensive universities. At these institutions, normal budget allocations and often modest endowments and external sources of funds are simply not available to support the extensive additional efforts required to identify faculty mentors, implement recruitment plans, or provide financial incentives, such as tuition waivers, in preparing these students for entry into doctoral degree programs at research universities. Institutional support can also make the difference in providing these students with access to successful faculty role models: faculty members at comprehensive universities who are graduates of Ph.D. and Ed.D. programs from major research universities. Many, if not most, of these faculty had themselves been supported as pre-doctoral students through teaching assistantships or fellowships from federal agencies or through research assistantships provided through research grants. At comprehensive universities they are likely to serve as mentors for students in either academic master's degree programs or in professional master's degree programs.

Finally for many students, federal assistance in the form of loans remains an important resource in support of their graduate study for the master's, doctoral, and professional degree. For non-traditional students who must support a family and/or for those who must work part time in order to pay for their advanced education, the loan assumes the form of providing supplementary funds. For others, the loan may permit them to have the finances necessary to abandon part-time jobs and pursue full-time graduate work. Government loans become important as the costs of education escalate and annual income is postponed during the years of graduate study.

Extraordinary loan indebtedness, even for undergraduate students, however, has continued to be a problem. Even with low interest payments, the fear of further indebtedness can serve as a barrier to the pursuit of additional graduate education. Opportunities for students to participate in loan-forgiveness programs can be a strong incentive for them to make the commitment to obtain graduate degrees and can create incentives to become university faculty. Forgivable loans are particularly useful as incentives to attract talented people into careers where remuneration may not be competitive with that of private industry.

The need for greater and better support in obtaining access to advanced studies by students, especially those from disadvantaged groups, is substantial and of special importance in meeting national goals in higher education. The future of America's economic success is inextricably tied to the development of a highly educated, skilled citizenry as well as to a renewed effort to galvanize the American system of higher education. Of critical importance to this effort is the creation of opportunities to strengthen graduate education through existing master's degree programs at regional comprehensive universities and to encourage greater inter-institutional cooperation in preparing these graduates for positions with community colleges, colleges, and universities.■